Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)	
	)	
GEOPHYSICAL SURVEY SYSTEMS, INC.	)	Docket No. 04-374
	)	DA 04-3262
Petition for Waiver of Section 15.509 of the Commission's Rules Concerning Certain Ground Penetrating Radar Devices	)	
	)	

To: Chief, Office of Engineering and Technology

COMMENTS

Cingular Wireless LLC ("Cingular") hereby submits its comments on the Petition for Waiver ("Petition") filed October 13, 2004 by Geophysical Survey Systems, Inc. ("GSSI"), as corrected in GSSI's October 15, 2004 Erratum.[1]

The Petition serves as an illustration that the Commission's ultra-wideband ("UWB") rules, 47 C.F.R. §§ 15.501-525, are regarded by some as not binding. One UWB device after another requires a waiver of the rules.[2] This raises the question whether the UWB rules govern the technical characteristics of UWB devices, or, instead, are but rough guidelines that serve as a starting point for negotiating customized technical criteria for each UWB device through waiver.

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[1] Public Notice, *Office of Engineering and Technology Declares Geophysical Survey Systems, Inc. Request for a Waiver of Part 15 to be a "Permit-but-Disclose" Proceeding for Ex Parte Purposes*, DA 04-3262 (October 15, 2004).

[2] *See, e.g.*, Public Notice, *Office of Engineering and Technology Declares MBOA-SIG Request for a Waiver of Part 15 for an Ultra-Wideband System to be a "Permit-but-Disclose" Proceeding for Ex Parte Purposes*, DA 04-2793 (August 30, 2004); Public Notice, *Office of Engineering and Technology Declares Wavebounce Request for a Waiver of Part 15 to be a "Permit-but-Disclose" Proceeding for Ex Parte Purposes*, DA 04-3039 (September 22, 2004); MBOA August 16, 2004 Supplement to Petition at 1-2 (mentioning a waiver request, not yet on public notice, by another GPR company identified only as "RSI").

The Commission's answer to this question in the *UWB Order* was that the UWB rules were intended to govern UWB devices as written, even though they might rule out some UWB applications. It stated:

> We recognize that our initial restrictions on applications, operating frequencies and emission levels may limit some UWB applications. However, we believe that we should be cautious until we have gained further experience with this technology. Once additional experience has been gained with UWB operation, we may consider whether more flexible standards are appropriate.[3]

Moreover, the GPR emission limits were specifically intended to protect services such as PCS, which operate in the frequency range that GSSI seeks to use:

> The limits specified above for imaging systems reflect an abundance of caution to protect the GPS and PCS services, and the passive bands employed in radio astronomy and by satellite sensors. We believe that by restricting the parties and requiring coordination before the device is used that the proliferation of these systems will be limited and the use controlled to a narrow range of applications that should not present interference concerns.[4]

The rules for GPRs were crafted to permit GPR devices to employ UWB emissions at power levels that the Commission believed were sufficient, based on the record, and subject to restrictions that it concluded were necessary to protect licensed operations from harmful interference at such power levels. The Commission said that imaging devices, such as GPRs, could operate "without causing harmful interference *provided appropriate technical standards and operational restrictions are applied to their use.*"[5] In particular, the Commission established strict emission limits on GPRs to prevent harmful interference. For frequencies above 960 MHz, these

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[3] *Ultra-Wideband Transmission Systems*, ET Docket 98-153, *First Report and Order*, 17 F.C.C.R. 7435, 7444-7445 (*UWB Order*), *erratum*, 17 F.C.C.R. 10505 (2002), *clarified*, 17 F.C.C.R. 13522 (OET 2002) (*UWB Clarification Order*), *recon. in part*, 18 F.C.C.R. 3857 (2003) (*UWB Reconsideration Order*).

[4] *UWB Order*, 17 F.C.C.R. at 7456.

[5] *UWB Order*, 17 F.C.C.R. at 7454 (emphasis added).

limits, contained in 47 C.F.R. § 15.509, are lower than the general Part 15 limits in 47 C.F.R. § 15.209 that apply to non-UWB devices.

A trade association, the GPR Service Providers Council, sought reconsideration, asking the Commission, among other things, to allow operations between 960 MHz and 3.1 GHz and to permit emissions at power levels up to the Section 15.209 limits. In response, the Commission changed its rules to permit operations in the formerly forbidden 960 MHz to 3.1 GHz band, but it denied the request to apply the higher emission limits of Section 15.209, explaining that "at the request of NTIA and based on our desire to proceed with an abundance of caution we are not changing the emission limits applicable to GPRs at this time."[6]

GSSI makes no attempt to show how a grant of its waiver request would be consistent with the cautionary approach that is at the core of the rule. It simply maintains that the rule should not apply because there is inherently no cause for concern about harmful interference from non-contact GPR devices. It acknowledges that such devices can function when designed in compliance with the rule,[7] but nevertheless asks the Commission to waive the rule and apply the Section 15.209 limits instead of the lower limits that the Commission has decided and reaffirmed are necessary. The Petition should therefore be dismissed as an untimely petition for reconsideration of the Commission's previous denial of the GPR Providers' petition for reconsideration.

Even if the Commission considers the Petition on its merits, no basis has been shown for a waiver. The Commission's rules permit waivers to be granted only for good cause.[8] The burden is on a waiver applicant to show that "special circumstances warrant a deviation from the

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6 *UWB Reconsideration Order,* 18 F.C.C.R. at 3872.

7 *See, e.g.,* Petition at 2-3

8 47 C.F.R. § 1.3.

general rule and such deviation will serve the public interest."[9] Moreover, the applicant must demonstrate that "the particular facts make strict compliance inconsistent with the public interest if applied to petitioner and when the relief requested would not undermine the policy objective of the rule in question."[10]

Here, the Commission found that its restrictive emission limits were necessary to guard against harmful interference even though they would "limit some UWB applications."[11] The GSSI application apparently falls into that class, at least at the speeds at which GSSI seeks to operate. There is nothing unique about GSSI's application; it is the sort of application that the Commission intended to restrict in the interest of interference protection. That is why the Commission permitted UWB GPRs *only* when "appropriate technical standards and operational restrictions are applied to their use."[12] The rules, therefore, should be applied. If this application is eligible for a waiver, under what circumstance will the rules apply? A grant of a waiver here will encourage others to seek waivers, and the rules, which are needed as safeguards against interference, will be rendered meaningless.

GSSI wants to use a downward-pointing antenna twelve inches above the ground to transmit pulses into the earth while moving at traffic speeds of up to 60 mph, using a pulse repetition factor ("PRF") in excess of 100 kHz.[13] To comply with the rules it would either have to

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9 *Northeast Cellular Telephone v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990).

10 *National Exchange Carrier Association*, WC Docket No. 04-259, *Order Granting Petition for Rulemaking, Notice of Proposed Rulemaking, and Order Granting Interim Partial Waiver*, FCC 04-174, ¶ 39 & n.95 (July 19, 2004), *citing WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), *appeal after remand*, 459 F.2d 1203 (D.C. Cir. 1972), *cert. denied*, 409 U.S. 1027 (1972)

11 *UWB Order*, 17 F.C.C.R. at 7454.

12 *UWB Order*, 17 F.C.C.R. at 7454 (emphasis added).

13 Petition at 2. GSSI does not state the maximum PRF it intends to use. It does, however, state that the highest PRF that is consistent with Section 15.509 is 100 kHz, which limits the op-

(continued on next page)

operate at a reduced power level or use a much lower PRF (thus limiting the speed of the measurement vehicle).[14] When the Commission adopted its GPR rules, however, it believed that GPRs typically used a low PRF, and the low PRF was critical to its conclusion that GPRs would not be likely to cause interference.[15] If the premises underlying the rules are no longer correct, the proper course of action would be to file a petition for rulemaking, not a waiver request.

GSSI has provided little information that would permit an assessment of the degree of interference that could be expected from its operation at the power levels requested. Caution is warranted given that the devices may be used on streets and highways where wireless phones, two-way radios, and GPS devices are in common usage. The fact that the devices will not be in contact with the ground, but will be operating at a twelve inch elevation above the ground surface, is also a reason for caution, because a significant portion of the energy from the antenna will be reflected from the ground,[16] posing a significant interference risk, which the rules were adopted to preclude. The photograph of GSSI's GPR included in the petition illustrates that

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(footnote continued)

erational speed to 12 mph. Assuming a linear relationship between PRF and maximum operational speed, GSSI would appear to be planning to require a PRF in the range of 600 kHz. It neither makes any commitment to limit its PRF to that nor proposes any outer bounds.

14 Supplement to Petition, Att. at 2.

15 *UWB Order*, 17 F.C.C.R. at 7454 & n.109 ("GPRs generally operate at low PRFs as they must pause between pulses to give the signal transmitted into the ground sufficient time to be reflected and to return to the receiver."), 7455 ("the record showed that the GPS and other authorized services are generally robust against interference from devices, such as GPRs, with low PRFs . . . ."), 7456 n.110 ("GPRs are a specialized application of imaging systems and can operate . . . using any PRF provided, however, that they comply with all of the other technical and operational restrictions associated with this equipment category."), 7464 & n.161 (noting that PRFs of about 100 kHz "are found in most of the proposed GPR systems."), 7464-7520 (discussing tests showing that GPRs with PRFs higher than 100 kHz pose a greater risk of interference than those with lower PRFs).

16 GSSI acknowledges that "Non-contact GPRs necessarily produce higher spurious emissions than ground-coupled GPRs. . . . [T]he relatively wide gap under the moving antenna results in energy reflection from the ground surface and nearby objects." Petition at 2.

there is no attempt to shield or absorb the reflections from the surface — the spurious radiation is free to scatter in all directions.[17]

Accordingly, the petition for waiver should be denied.

Respectfully submitted,

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[17] *See* Petition at 2 (Figure 1).